

EXHIBIT E

EXHIBIT E – STEPHEN GRAVES TESTIMONY

1. Graves is a participant in the renowned Caltech/MIT voting Technology Project:

Page 7 Lines 16-21

- 16 Q. Okay. Now, you said that you had
17 previously consulted with the Caltech/MIT Voting
18 Technology Project --
19 A. I am --
20 Q. -- or you're a member of --
21 A. I am a participant of that project, yes.

2. The assumption of Dr. Allen concerning any poll voter line backup being attributable to the voting booths is not supported by the data that Plaintiffs volunteers' gathered from the 2016 general election; rather, the data evidences that the delay was due to the check-in table.

Page 18 Lines 2 - 22

- 2 A. Well, I understand that, in Professor
3 Allen's deposition, albeit not in his expert report,
4 he provides that as a -- I would say a justification
5 for the analysis that he did, but I -- I can't
6 testify as to whether or not that's the actual
7 practice in Michigan. And indeed, the evidence I
8 saw might suggest that it's not, because there --
9 you know, there was waiting in -- of some extent in
10 almost all of the precincts, some waiting between
11 registration and the voting booths.
12 Q. Although you summarized that in your
13 Exhibit A. And that was a very minimal amount of
14 time, isn't that true?
15 A. Yes. Yeah.
16 Q. And that was --
17 A. But it was not zero.
18 Q. Right. That was what led to your
19 conclusion that the bottleneck was at the voting
20 booths?
21 A. I did not conclude that the bottleneck was

22 at the voting booths.

Page 19 Lines 4 - 12

4 Q. Okay. Your analysis -- you concluded that
5 the bottleneck was at the registration table,
6 because you saw very little waiting time -- in the
7 data provided to you, very little waiting time at
8 the voting booths?

9 A. That was one aspect of my conclusion. I
10 also -- I mean, I also did some other analysis that
11 would suggest that the -- that the bottleneck was at
12 the registration.

Page 43 Lines 9 - 18

9 And, with regard to the bottleneck, what
10 we've talked about is the -- is that the data and
11 whether or not it actually shows that people were
12 waiting for booths or whether -- whether the actual
13 wait was -- was at the registration table, isn't
14 that correct?

15 A. Well, I think there's no dispute that the
16 wait was at the registration desk.

17 Q. Right.

18 A. That's what the data says.

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7 A. Well, to me, looking at this data and --
8 and making some assumptions about the intent of how
9 the data was collected, I think I can conclude that
10 the bottleneck was at -- was at the check-in
11 station.

3. Dr. Allen lacked evidence to support his assumption that it would take 25% more time to vote without the STV option.

Page 24 Line 25 - Page 25 Line 4

25 So you are assuming -- excuse me. You are
1 criticizing Professor Allen for not having imperial

2 evidence in support of his assumption that the
3 amount of time that it takes to vote would increase?
4 A. Yes.

Page 36 Line 13 - Page 37 Line 10

13 Q. So I think you were -- you were retained to
14 comment about Professor Allen's report, and we've
15 explored the fact that you criticized his assumption
16 about the amount of time that it would take for a
17 straight-party voter to vote without that option.
18 You see no -- nothing in his report that indicates
19 where his conclusion came from or where his -- what
20 his assumption is based on, isn't that correct?

21 A. Yeah. I think my main criticism -- my main
22 criticism of that aspect of the report is that, you
23 know, he really -- he really did not provide any
24 evidence in support of the assumptions that he was
25 making that resulted in or, rather, that allowed him
1 to increase the --

2 Q. Right. So what you thought should have
3 been there or could have been there was I estimate
4 that it will increase 25 percent based upon this,
5 that, and the other data that I have, is that
6 correct? Or just --

7 A. Yes. I would like to have seen some
8 evidence --

9 Q. Okay. Right.

10 A. -- some supporting evidence.

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UNITED STATES DISTRICT COURT

EASTERN DISTRICT OF MICHIGAN

SOUTHERN DIVISION

X

MICHIGAN STATE A. PHILIP RANDOLPH

INSTITUTE, COMMON CAUSE, MARY

LANSDOWN, ERIN COMARTIN, and

DION WILLIAMS,

Plaintiffs, No. 2:16-cv-11844

vs.

RUTH JOHNSON, in her official Hon. Gershwin

capacity as Michigan Secretary Drain

of State,

Defendant.

X

DEPOSITION OF STEPHEN C. GRAVES, a witness
called on behalf of the Plaintiffs, taken pursuant to
the applicable provisions of the Federal Rules of
Civil Procedure, before Valerie R. Johnston,
Registered Professional Reporter and Notary Public in
and for the Commonwealth of Massachusetts, at the MIT
Sloan School of Management, at 100 Main Street,
Building E62, Cambridge, Massachusetts, on Friday,
August 25, 2017, commencing at 9:26 a.m.

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1 BY MS. GUREWITZ:

2 Q. And you were retained, as I understand it,
3 to respond to -- you were retained by the Secretary
4 of State for the State of Michigan to provide an
5 assessment of the expert report submitted by
6 Professor Allen.

7 A. Yes.

8 Q. You were not asked to independently provide
9 any assessment of the effect, if any, of PA 268, the
10 statute in this -- in this matter? Yeah. Were you
11 asked to provide any independent assessment of
12 the --

13 A. Yeah.

14 Q. -- effect of the --

15 A. Yeah. I was not asked. Yes.

16 Q. Okay. Now, you said that you had
17 previously consulted with the Caltech/MIT Voting
18 Technology Project --

19 A. I am --

20 Q. -- or you're a member of --

21 A. I am a participant of that project, yes.

22 Q. And, in that context, it said -- you say
23 that -- about the queuing theory that it is used to
24 calculate the minimum number of service times at a
25 process step so as to satisfy a service target on

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1 registration table. Does that seem --

2 A. Well, I understand that, in Professor
3 Allen's deposition, albeit not in his expert report,
4 he provides that as a -- I would say a justification
5 for the analysis that he did, but I -- I can't
6 testify as to whether or not that's the actual
7 practice in Michigan. And indeed, the evidence I
8 saw might suggest that it's not, because there --
9 you know, there was waiting in -- of some extent in
10 almost all of the precincts, some waiting between
11 registration and the voting booths.

12 Q. Although you summarized that in your
13 Exhibit A. And that was a very minimal amount of
14 time, isn't that true?

15 A. Yes. Yeah.

16 Q. And that was --

17 A. But it was not zero.

18 Q. Right. That was what led to your
19 conclusion that the bottleneck was at the voting
20 booths?

21 A. I did not conclude that the bottleneck was
22 at the voting booths.

23 Q. Oh, I'm sorry. You concluded that the
24 bottleneck was at the registration table because of
25 the very small amount of time waiting at the -- for

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1 the voting booths to open up? That was your
2 analysis of the data that was provided to you?

3 A. What's the question?

4 Q. Okay. Your analysis -- you concluded that
5 the bottleneck was at the registration table,
6 because you saw very little waiting time -- in the
7 data provided to you, very little waiting time at
8 the voting booths?

9 A. That was one aspect of my conclusion. I
10 also -- I mean, I also did some other analysis that
11 would suggest that the -- that the bottleneck was at
12 the registration.

13 Q. But if, in fact -- and I understand what
14 you are saying, that you were not provided with
15 information about the way -- or you don't know what
16 elections inspectors are instructed to do. But, if,
17 in fact, they were instructed not to permit queues
18 to form at the voting booths but to keep voters back
19 at the registration line until the voting booths
20 open, that would change -- that could change your
21 assessment of whether the bottleneck is at the
22 registration table or at the voting booths?

23 A. Yeah. I would say yes, although I think
24 there would be some ambiguity as to what action was
25 happening there.

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1 to 6 minutes, then each booth would be handling 10
2 voters per hour, and the system would be
3 essentially -- would that be, like, in perfect
4 balance or...

5 A. Well, we would not say it's in perfect
6 balance, but we would say that, in some ways, there
7 are -- there are two constraints in the system.
8 There are two limiting steps. They are -- both the
9 check-in and the voting booths, as you said, would
10 have the same capability.

11 Q. But if it went -- then, if the amount of
12 time it took to vote went to 7 minutes, then by my
13 calculation, each booth could handle a little less
14 than nine voters per hour, and then the booths would
15 become the bottleneck, because people would be --
16 the check-in station would be able to handle more
17 voters per hour than the voting booths would handle,
18 is that correct?

19 A. Yes.

20 Q. Okay. This is, obviously, very logical,
21 and we're putting it into formulas, which I think is
22 very helpful, but sometimes it seems to have made --
23 made what is intuitively obvious a little bit more
24 complicated.

25 So you are assuming -- excuse me. You are

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1 criticizing Professor Allen for not having imperial
2 evidence in support of his assumption that the
3 amount of time that it takes to vote would increase?

4 A. Yes.

5 Q. Okay. And, with regard to his equation,
6 the equation that you -- that he had equated in his
7 report and that you cite at Page -- excuse me -- at
8 Paragraph 39 of your report, you say that one of the
9 problems with this equation is that it assumes the
10 average time for straight-party voting is the same
11 as the average time for mixed-ticket voting. That
12 is --

13 A. That's what I said, yes.

14 Q. -- your criticism at Paragraph 48, and I
15 know that Professor Allen addressed that.

16 I'm just grappling with this myself and
17 came up with my own formula, and I think that,
18 maybe, you can help me with this. It appeared to me
19 that --

20 MS. GUREWITZ: We can mark this as Exhibit
21 1.

22 (Document marked as Exhibit 1
23 for identification)

24 BY MS. GUREWITZ:

25 Q. What I tried to do here was to figure

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1 that it took approximately 7 minutes to vote based
2 upon a study in the 2014 general election, and he
3 testified that -- that he estimated that it would
4 take 10 minutes to vote a longer ballot in a
5 presidential election, and he estimated that it
6 would take as much as 3 minutes more to vote without
7 straight party.

8 MR. WOOD: Object to the testimony of
9 Counsel.

10 Q. That information was not provided to you?
11 That is correct, is it not?

12 A. Yes.

13 Q. So I think you were -- you were retained to
14 comment about Professor Allen's report, and we've
15 explored the fact that you criticized his assumption
16 about the amount of time that it would take for a
17 straight-party voter to vote without that option.
18 You see no -- nothing in his report that indicates
19 where his conclusion came from or where his -- what
20 his assumption is based on, isn't that correct?

21 A. Yeah. I think my main criticism -- my main
22 criticism of that aspect of the report is that, you
23 know, he really -- he really did not provide any
24 evidence in support of the assumptions that he was
25 making that resulted in or, rather, that allowed him

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1 to increase the --

2 Q. Right. So what you thought should have
3 been there or could have been there was I estimate
4 that it will increase 25 percent based upon this,
5 that, and the other data that I have, is that
6 correct? Or just --

7 A. Yes. I would like to have seen some
8 evidence --

9 Q. Okay. Right.

10 A. -- some supporting evidence.

11 Q. Right. Okay. And your other criticism I
12 believe related to your determination that, based
13 upon the evidence that you did see, it was your
14 conclusion that the bottleneck was at the
15 registration table and not at the voting booth?
16 That is correct, isn't it?

17 A. Well, the other criticism I make in my
18 report relates to a simulation study. One point
19 was, you know, his -- his assumption that the
20 bottleneck was at the voting booth, but -- but I
21 also objected to how he made some adjustments to the
22 number of booths as he -- as he ran his simulations.
23 Yeah.

24 Q. Right. So there were those two objections.
25 So some of -- and you have -- you were provided with

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1 adjustment that he made in that data?

2 A. Yes.

3 Q. Okay. So I'm just trying to explore all of
4 the -- you know, obviously, experts have different
5 opinions about different things. That's what we're
6 doing here, and I am trying to explore in a rather
7 convoluted way, I'm afraid, what it is that your --
8 that you disagree with.

9 And, with regard to the bottleneck, what
10 we've talked about is the -- is that the data and
11 whether or not it actually shows that people were
12 waiting for booths or whether -- whether the actual
13 wait was -- was at the registration table, isn't
14 that correct?

15 A. Well, I think there's no dispute that the
16 wait was at the registration desk.

17 Q. Right.

18 A. That's what the data says.

19 Q. But the question was, was it at the
20 registration desk because the registration people
21 were not able to process or was it at the
22 registration table because there were -- because the
23 booths could not accommodate the voters who were
24 coming in?

25 MR. WOOD: Object to the form of the

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1 conclude from this data -- it does not allow you
2 necessarily to conclude where the bottleneck was.

3 MR. WOOD: I object to the form of the
4 question.

5 You can go ahead and answer, if you're
6 able.

7 A. Well, to me, looking at this data and --
8 and making some assumptions about the intent of how
9 the data was collected, I think I can conclude that
10 the bottleneck was at -- was at the check-in
11 station.

12 Q. Okay. However, other information could
13 lead you to -- other information which is not
14 provided in the data could affect your conclusion.
15 I think you said that earlier, isn't that true?

16 MR. WOOD: Object to the form of the
17 question.

18 You can go ahead and answer.

19 A. Yes. Yeah. I would say there would be
20 more ambiguity as to what -- what is happening in
21 the system, and it would -- I think it would not be
22 clear where the bottleneck is if you -- if you were
23 to believe the assertion that, you know, more is
24 happening at the registration table than just
25 registering the voter. In some ways, then that

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1 COMMONWEALTH OF MASSACHUSETTS)

2 SUFFOLK, SS.)

3 I, Valerie Rae Johnston, Shorthand Reporter and
4 Notary Public in and for the Commonwealth of
5 Massachusetts, do hereby certify that there came
6 before me on the 25th day of August 2017, at 9:26
7 a.m., the person hereinbefore named, who was by me
8 duly sworn to testify to the truth and nothing but
9 the truth of his knowledge touching and concerning
10 the matters in controversy in the cause; that he was
11 thereupon examined upon his oath, and his
12 examination reduced to typewriting under my
13 direction; and that the deposition is a true record
14 of the testimony given by the witness.

15 I further certify that I am neither attorney or
16 counsel for, nor related to or employed by, any
17 attorney or counsel employed by the parties hereto
18 or financially interested in the action.

19 In witness whereof, I have hereunto set my hand
20 and affixed my notarial seal this ____ day of
21 September 2017.

22 _____
23 Notary Public

24 My commission expires: 8/5/22
25